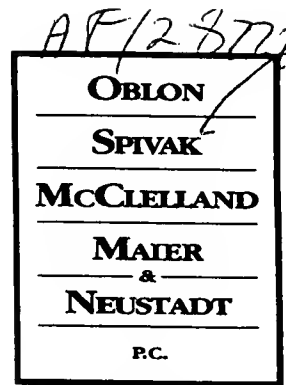




Docket No.: 0557-4628-2 REISSUE

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231



ATTORNEYS AT LAW

RE: Application Serial No.: 09/421,332
Applicants: Kohji SAKAI et al.
Filing Date: October 18, 1999
For: MULTI-BEAM OPTICAL SCANNER
Group Art Unit: 2872
Examiner: Phan, J.

SIR:

Attached hereto for filing are the following papers:

APPEAL BRIEF WITH APPENDIX (IN TRIPLICATE)

Our check in the amount of \$320.00 is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE REISSUE APPLICATION OF: :

Kohji SAKAI et al. :

Group: 2872

SERIAL NO: 09/421,332 :

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APPEAL BRIEF

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

This is an appeal from the decision of the Examiner dated August 28, 2001, which finally rejected Claims 1-7 and 10-15 in the above-identified patent application.

I. REAL PARTY-IN-INTEREST

The real party-in-interest is Ricoh Company, Ltd. as evidenced by the Assignment recorded in the U.S. Patent and Trademark Office at reel no. 8877, frame 0070.

II. RELATED APPEALS AND INTERFERENCES

None.

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III. STATUS OF CLAIMS

Claims 1-7 and 10-15 are currently pending and the subject of this appeal. Claims 8 and 9 were previously canceled.

IV. STATUS OF AMENDMENTS

All amendments have been entered since no amendment was filed after receipt of the most recent final rejection.

V. SUMMARY OF THE INVENTION¹

As described in the Background of the Invention, the "present invention relates to a ... multi-beam optical scanner realizing a light spot in an appropriate form on a scanned surface and effectively reducing degradation in image quality of a recorded image due to pitch deviation."² Generally, Figure 1A shows one embodiment of a scanner in which plural light beams 1a and 1b are reflected off a reflection surface 4 (e.g., a rotating mirror) and eventually "bent in their light path by a light path bending mirror 9, ... [and] focused on the photosensitive body 7 with the peripheral surface thereof matching with the scanned surface...."³ One use of such a system is described in the Summary of the Invention which states "It is an object of the present invention to effectively reduce degradation in image quality in a recorded image due to pitch deviation, in addition, to enable effective reduction

¹The requirements of 37 CFR 1.192 state that the specification shall be referred to "by page and line number." For ease of reference to the original patent of which this is a re-issue application, references are made to the column and line number of the issued patent which nonetheless correspond to the page and line numbers of the specification as well.

²Col. 1, lines 3-7.

³Col. 5, lines 23-26.

of cost of a lengthy lens included in an optical system for converging deflected light fluxes on the scanned surface, and also to effectively suppress contamination of the lengthy lens due to splashed toner."⁴

Moreover, the magnification β of the system of the present invention in the auxiliary scanning direction is directed to a particular range. The claimed range for each of the independent claims is $2 < \beta < 8.5$.

VI. ISSUES

The two issues on appeal are (1) whether the pending claims are supported by an adequate written description and (2) whether the pending claims are supported by an enabling disclosure.⁵ Since there are three claim groups (as described in the next section), the discussion of each issue is split into three parts as well.

VII. GROUPING OF THE CLAIMS

The claims at issue should be considered as three separate groups for patentability. The first group is claims 5 and 12; the second group is claim 4; and the third group of claims includes the remaining claims, i.e., claims 1-3, 6, 7, 10, 11, and 13-15. The first group of claims is separately patentable from the second and third groups because claims 5 and 12 explicitly recite a coupling lens and a collimate lens, respectively. The final Office Action asserts that the claims must recite a coupling lens or a collimate lens in order to be patentable. Since claims 5 and 12 expressly recite exactly that, those claims, by the final

⁴Paragraph crossing cols. 1 and 2.

⁵Sections 2 and 3 of the final Office Action seem to both be directed to different aspects of the same issue (i.e., enablement) and are thus treated within the same issue.

Office Action's own admission, should be indicated as allowable *as is* and must therefore be patentable even if none of the other claims are patentable.

As for the second group of claims, claim 4 implicitly requires that the other elements of claim 1 be used in conjunction with a coupling lens because claim 4 recites "wherein said LD light emitting sections are provided symmetric with respect to an optical axis of a coupling lens." Thus, the second group of claims (implicitly reciting the coupling lens in its environment) is separately patentable from the third group (which does not require a coupling/collimating lens at all) since the only issues in this appeal turn on whether the claims include a coupling/collimating lens. That is, even if the third group of claims is found to be unpatentable under 35 U.S.C. 112, first paragraph, the second group of claims is still patentable since it implicitly recites the coupling lens in its environment.

As for the third group of claims, no coupling/collimating lens is required. Nonetheless, it is believed that the specification as originally filed would have been enabling for and provided an adequate written description of the subject matter of the claims therein.

VIII. ARGUMENTS

A. First issue - Whether the pending claims are supported by an adequate written description

1. Group 1 - Claims 5 and 12

The outstanding final Office Action has repeated the arguments set forth in paragraph 3 of the non-final Office Action dated March 27, 2001. Paragraph 3 of the non-final Office Action states "The original disclosure requires the multi-beam optical scanner to have a coupling lens ... in order to satisfy the condition." Although it is believed that no such "requirement" exists, nonetheless, claims 5 and 12 explicitly recite a coupling lens and a

collimating lens, respectively. Thus, there is no dispute that those claims are supported by an adequate written description, and the rejection of those claims should be withdrawn in the Examiner's Answer.

2. Group 2 - Claim 4

As discussed above in Section VIII.A.1., paragraph 3 of the non-final Office Action, repeated by way of paragraph 1 of the final Office Action, states "The original disclosure requires the multi-beam optical scanner to have a coupling lens ... in order to satisfy the condition." Although it is believed that no such "requirement" exists, nonetheless, claim 4 recites "wherein said LD light emitting sections are provided symmetric with respect to an optical axis of a coupling lens." Thus, there is a coupling lens in the environment of claim 4 which would provide the functionality requested by the Office Action. Accordingly, claim 4 is supported by an adequate written description.

3. Group 3 - Claims 1-3, 6, 7, 10, 11, and 13-15

The final Office Action has asserted that "The original disclosure requires the multi-beam optical scanner to have a coupling lens, a first image-formation system, and a second image-formation system in order to satisfy the condition."⁶ The language necessary to rise to the level of "requires" was discussed in the previous response, and the specification of the present invention clearly does not rise to that level.

The previous response discussed SciMed Life Systems, Inc., v. Advanced Cardiovascular Systems, Inc., 58 USPQ2d 1059 (Fed. Cir. 2001), in which the court focused

⁶Office Action, paragraph crossing pages 3 and 4 (emphasis added).

most heavily on the Patentee's unequivocal statements as the basis for its decision to limit the claims. In its decision the Federal Court noted that the Patentee limited itself when it stated:

The intermediate sleeve structure defined above is the basic sleeve structure for all embodiments of the present invention contemplated and disclosed herein - namely, an inner core tube bonded to a distal portion of the main catheter shaft, with an outer sleeve forming an annular continuation of the inflation lumen through the main shaft between the core tube and outer sleeve.⁷

The previous response also cited Gentry Gallery Inc. v. Berkline Corp., 45 USPQ2d 1498 (Fed. Cir. 1998), for the proposition that it was again the Patentee's own words that were the cause of the court's narrowing interpretation during litigation (not prosecution). The court stated:

As the disclosure states, identifying the only purpose relevant to the console, "[a]nother object of the present invention is to provide . . . a console positioned between [the reclining seats] that accommodates the controls for both of the reclining seats." Thus, locating the controls anywhere but on the console is outside the stated purpose of the invention.⁸

In fact, that response noted that the Office Action did not pointed to any express statements in the specification that are commensurate with the facts of the cited cases. In responding, paragraph 1 of the final Office Action still does not cite any express statements which should be taken as an admission that such statements do not exist. Rather the final Office Action asserts, without support, that "the disclosure of the present application does not disclose any embodiments other than the only one embodiment ... which does not [provide] support for claims 1-7 and 10-15." However, absent any express statements narrowing the claims, the Court's general warning — "It is a truism that a claim need not be limited to a preferred

⁷ Id. at 1064-65.

⁸ Id. at 1503.

embodiment."⁹ — should be heeded and the claims should be indicated as supported and allowable.

It was also previously argued that the specification and claims are not ^{clear, not ambiguous} unequivocally limited to any particular lens-based configuration. In doing so, Reiffin v. Microsoft Corp., 54 USPQ2d 1915 (Fed. Cir. 2000), was cited in which Judge Newman of the Federal Circuit stated in her concurring opinion that:

It is standard for applicants to provide claims that vary in scope and in content, including some elements of a novel device or method, and omitting others. See Irving Kayton, 1 Patent Practice (6th ed.) 3.1, 3.3 (1995)....

Moreover, Judge Newman further cited 3 Lipscomb's Walker on Patents 290-91 (1985) which states that:

- [A] claim may cover an invention embracing the entire process, machine, manufacture, or composition of matter which is described in the specification, or it may cover such sub-processes or such sub-combinations of the invention as are new, useful and patentable. See, e.g., Special Equipment Co. v. Coe, 324 U.S. 370 (1945) (reversing the rejection of a sub-combination claim directed to the previously claimed invention less one element). While the specification must of course describe the claimed invention, it is well established that the claims need not include every component that is described in the specification. See Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336, 345, 128 USPQ 354 (1961) (There is "no legally recognizable or protected 'essential' element . . . in a combination patent.").

In response, the Office Action now states "there is **no teaching or suggestion** in the applicants' disclosure that **the range of the magnification** of the multi-beam optical scanner specified in independent claims 1 and 13-15 would be satisfied without a coupling lens."¹⁰ However, such an assertion does not cite any legal precedent that contradicts Reiffin. In fact, Lipscomb's analysis of Special Equipment therein is directly on point since it reversed the

⁹Id. at 1503.

¹⁰Emphasis in the original.

"the rejection of a sub-combination claim directed to the previously claimed invention less one element." An equivalent reversal is appropriate in this application as well.

B. Second issue - Whether the pending claims are supported by an enabling disclosure

1. Group 1 - Claims 5 and 12

The outstanding final Office Action has repeated the arguments set forth in paragraphs 4 and 5 of the non-final Office Action dated March 27, 2001. Paragraph 4 of the non-final Office Action admits that the specification is "enabling for a multi-beam optical scanner which comprises a coupling/collimating lens." Claims 5 and 12 explicitly recite a coupling lens and a collimating lens, respectively. Thus, by the Office Action's own admission, those claims are enabled and that ground for rejection should be withdrawn in the Examiner's answer.

2. Group 2 - Claim 4

As discussed above with reference in Section VIII.B.1., paragraph 4 of the non-final Office Action admits that the specification is "enabling for a multi-beam optical scanner which comprises a coupling/collimating lens." Claim 4 recites "wherein said LD light emitting sections are provided symmetric with respect to an optical axis of a coupling lens." Thus, there is a coupling lens in the environment of claim 4. Accordingly, as apparently admitted in the Office Action, the cooperation of the elements in claim 4 and its environment would have enabled one of ordinary skill in the art to make and use the invention, without undue experimentation, at the time of this application's filing.

3. Group 3 - Claims 1-3, 6, 7, 10, 11, and 13-15

The outstanding final Office Action has repeated the arguments set forth in paragraphs 4 and 5 of the non-final Office Action dated March 27, 2001. Paragraph 4 of the non-final Office Action admits that the specification is "enabling for a multi-beam optical scanner which comprises a coupling/collimating lens," but asserts that:

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

In fact, the non-final Office Action then asks the ultimate question: "How would one skilled in the art make a multi-beam optical scanner which satisfies a lateral magnification of greater than 2 and less than 8.5 without a coupling/collimating lens?"

To understand how such a scanner could be built without a coupling/collimating lens, it is appropriate to look at the function of such a lens. In paragraph 4a of Mr. Seizo Suzuki's first Declaration, filed August 3, 2000, Mr. Suzuki explained that "The purpose of the coupling lens is to increase the light intensity used to expose the surface [of a photosensitive body]." However, with a sufficiently strong light source, no coupling lens would be needed. In fact, Mr. Suzuki's Supplemental Declaration states, in paragraphs 6 and 7, that:

6. One of ordinary skill in the art would have known to find a description of a suitable light source to make and use the invention as evidenced by Figure 7 in Japanese Patent Laid-Open Publication No. 2-61608.

7. Accordingly, I believe that one of ordinary skill in the art would have been able to make and use the claimed invention without the use of a coupling lens or a collimating lens without undue experimentation.

Nonetheless, having answered at least one way that the ultimate question posed in the Office Action could be answered, the final Office Action admittedly ignored the declaration. The final Office Action admits:

[N]o weight is given to the Supplemental Declaration because it does not show that the magnification range of a multi-beam scanner which does not include a coupling lens would be the same as that of a multi-beam scanner which includes a coupling lens.

Such a statement, however, does not seem to address any legal test for whether a declaration should be afforded weight.¹¹ The declaration need only assert that at least one scanner with the claimed range would have been enabled without the coupling lens since the non-final Office Action has admitted that the specification enables the claimed range if a coupling lens is used. The declaration in fact expressly states that a scanner could have been built without the coupling lens at the time of filing. Paragraph 7 of Mr. Suzuki's declaration states:

7. Accordingly, I believe that one of ordinary skill in the art would have been able to make and use the claimed invention without the use of a coupling lens or a collimating lens without undue experimentation.

This statement alone refutes the final Office Action's assertion in paragraph 3 that the "applicants fail to show that the claimed magnification range could be obtained without the use of a coupling/collimate lens."

The Office Action also has not addressed the "without undue experimentation" standard. As Mr. Suzuki has stated, "one of ordinary skill in the art would have been able to make and use the claimed invention without the use of a coupling lens or a collimating lens

¹¹If the Office Action is intending to state that the declaration must assert that a scanner has the same magnification range with or without a coupling lens, then it is respectfully submitted that no such showing is required under the law. The specification need only enable each embodiment independently.

without undo experimentation." Given that reasonable experimentation is allowable, it is irrelevant for enablement purposes whether Applicants expressly disclosed a system without a coupling/collimate lens, as long as one of ordinary skill in the art could have made and used the claimed invention. Thus, the Office Action's apparent admission that its reliance on Mayhew is misplaced further evidences that the specification is enabling.

IX. APPENDIX

A copy of the claims involved in this appeal are attached hereto in the enclosed appendix.

CONCLUSION

Consequently, it is respectfully submitted that the specification would have (1) provided an adequate written description to support the pending claims and (2) enabled one of ordinary skill in the art, at the time of filing, to make and use the claimed invention. Therefore, it is earnestly solicited that the Examiner's decision to finally reject Claims 1-7 and 10-15 be REVERSED.

Respectfully submitted,

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APPENDIX

1. (Twice Amended Since Filing) A multi-beam optical scanner comprising:

a light source for [a multi-beam] providing plural light beams;

[a coupling lens for coupling a plurality of light fluxes from said light source for a multi-beam to an image-forming optical system;]

a first image-formation system for focusing [a plurality of light fluxes coupled by said coupling lens] the plural light beams from the light source in a direction corresponding to auxiliary scanning and forming [them to] the plural light beams into images as a plurality of line images each [long] having a longer side in a direction corresponding to main scanning;

an optical deflector having a deflecting reflection surface adjacent to positions where [images as] said plurality of line images are formed for deflecting [said plurality of light fluxes] the plural light beams;

a second image-formation system for separating the [plurality of light fluxes] plural light beams deflected by said optical deflector from each other in a direction of auxiliary scanning on a scanned surface and converging the [plurality of light fluxes] plural light beams as a plurality of light spots for optically scanning said scanned surface in accordance with deflection of the plural light [fluxes] beams; wherein

the plurality of light spots on the scanned surface optically scan scanning lines adjacent to each other on plural consecutive scans, and

a lateral magnification β in a direction corresponding to the auxiliary scanning [in a composite system] of the optical [system] scanner between said light source [for a multi-beam] and said scanned surface is as follows:

$$2 < \beta < 8.5$$

[and the plurality of light spots on the scanned surface optically scan scanning lines adjacent to each other].

2. (As filed) A multi-beam optical scanner according to claim 1, [;] wherein said light source [for a multi-beam] comprises at least two [or more] LD light emitting sections [or LED light emitting sections] monolithically provided therein.

3. (As filed) A multi-beam optical scanner according to claim 1, [;] wherein said light source [for a multi-beam] comprises at least a pair of [two or more] LD light emitting sections [or LED light emitting sections] in [hybrid] combination [thereof].

4. (As filed) A multi-beam optical scanner according to claim 1, [;] wherein said light source [for a multi-beam has] comprises two LD light emitting sections, [and] wherein said LD light emitting sections are provided symmetric with respect to an optical axis of a coupling lens.

5. (Once Amended Since Filing) A multi-beam optical scanner according to claim 1, [;] [wherein said] further comprising a coupling lens [is a collimate lens] for [collimating a plurality of] coupling at least one light [fluxes] beam of the plural light beams from said light source [for a multi-beam at the same time].

6. (As filed) A multi-beam optical scanner according to claim 1, [;] wherein said second image-formation system includes a lengthy lens provided in a side of the scanned surface.

7. (As filed) A multi-beam optical scanner according to claim 1, [;] wherein said first image-formation system comprises a [piece of] lens having power only in the auxiliary scanning direction, while said second image-formation system comprises a constant-velocity optical-scanning image-forming mirror and a lengthy lens each provided on the side of the scanned surface.

8.-9. (Canceled)

10. (As filed) A multi-beam optical scanner according to claim 1, wherein said light source comprises at least two LED light emitting sections monolithically provided therein.

11. (As filed) A multi-beam optical scanner according to claim 1, wherein said light source comprises at least a pair of LED light emitting sections in combination.

12. (Twice Amended Since Filing) A multi-beam optical scanner according to claim 5, wherein said coupling lens is a collimate lens for collimating the plural light beams from said light source at the same time.

13. (Twice Amended Since Filing) A multi-beam optical scanner comprising:
plural light beams;

a first image-formation system for focusing the plural light beams in a direction corresponding to auxiliary scanning and forming the plural light beams into images as a plurality of line images each having a longer side in a direction corresponding to main scanning;

an optical deflector having a deflecting reflection surface adjacent to positions where said plurality of line images are formed for deflecting the plural light beams;

a second image-formation system for separating the plural light beams deflected by said optical deflector from each other in a direction of auxiliary scanning on a scanned surface and converging the plural light beams as a plurality of light spots for optically scanning said scanned surface in accordance with deflection of the plural light beams;
wherein

the plurality of light spots on the scanned surface optically scan scanning lines adjacent to each other on plural consecutive scans, and

a lateral magnification β in a direction corresponding to the auxiliary scanning of the optical scanner is as follows:

$$2 < \beta < 8.5.$$

14. (Twice Amended Since Filing) An image forming apparatus comprising:

a multi-beam optical scanner including:

a light source for providing plural light beams:

a first image-formation system for focusing the plural light beams from the light source in a direction corresponding to auxiliary scanning and forming the plural light beams into images as a plurality of line images each having a longer side in a direction corresponding to main scanning;

an optical deflector having a deflecting reflection surface adjacent to positions where said plurality of line images are formed for deflecting the plural light beams;

a second image-formation system for separating the plural light beams deflected by said optical deflector from each other in a direction of auxiliary scanning on a scanned surface and converging the plural light beams as a plurality of light spots for optically scanning said scanned surface in accordance with deflection of the plural light beams; wherein

the plurality of light spots on the scanned surface optically scan scanning lines adjacent to each other on plural consecutive scans, and

a lateral magnification β in a direction corresponding to the auxiliary scanning of the optical scanner is as follows:

$$2 < \beta < 8.5.$$

15. (Twice Amended Since Filing) An image forming apparatus comprising:

a multi-beam optical scanner including:

plural light beams;

a first image-formation system for focusing the plural light beams in a direction corresponding to auxiliary scanning and forming the plural light beams into images as a plurality of line images each having a longer side in a direction corresponding to main scanning;

an optical deflector having a deflecting reflection surface adjacent to positions where said plurality of line images are formed for deflecting the plural light beams;

a second image-formation system for separating the plural light beams deflected by said optical deflector from each other in a direction of auxiliary scanning on a scanned surface and converging the plural light beams as a plurality of light spots for optically scanning said scanned surface in accordance with deflection of the plural light beams; wherein

the plurality of light spots on the scanned surface optically scan scanning lines adjacent to each other on plural consecutive scans, and

a lateral magnification β in a direction corresponding to the auxiliary scanning of the optical scanner is as follows:

$$2 < \beta < 8.5.$$